

Student doctors (*umfundi wobugqirha*): The role of student-run free clinics in medical education in Cape Town, South Africa

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Background. Since 1943, the Students' Health and Welfare Centres Organisation (SHAWCO) of the University of Cape Town has provided voluntary, student-run free clinics in under-served communities in Cape Town, South Africa, filling major gaps in the city's healthcare services.

Objective. To determine the role SHAWCO clinics play in medical education.

Methods. A mixed-methods study with a predominantly quantitative questionnaire utilising dichotomised Likert scales was performed with 110 clinic volunteers. The Likert scales were converted to population proportions for quantitative analysis. Qualitative data obtained from participants' comments were analysed thematically.

Discussion. SHAWCO clinics provide a controlled environment in which to practise skills acquired in medical school. Over 98% of students attend clinics to increase their clinical exposure. Medical conditions that students encounter are primary care problems, often neglected at tertiary level teaching institutions. The clinics achieve what the formal curriculum struggles to do: humanise medical treatment, allowing one to better understand the socio-economic background of patients.

Conclusion. SHAWCO is best suited in its current role of hands-on, community-based learning to augment the training provided in the formal medical curriculum.

AJHPE 2014;6(1):28-32. DOI:10.7196/AJHPE.311



The City of Cape Town, South Africa is home to an estimated population of 3.5 million, >15% of whom live in informal housing or shanty towns.^[1] These dwellings often do not have piped water or access to flushing toilets, and many are still dependent on bucket latrines. According to

the 2007 South African census, only 20.9% of people living in the Cape Town area have completed their final year of high school, and there is an unemployment rate of 24.5%. The city faces a quadruple burden of disease, which includes high levels of infectious diseases (HIV/AIDS/TB and other sexually transmitted infections); a growing prevalence of non-communicable diseases (diabetes, hypertension); high maternal, infant and child mortality rates; and social conditions linked to excessive levels of interpersonal violence and injuries.

Volunteers from the Students' Health and Welfare Centres Organisation (SHAWCO), based at the University of Cape Town (UCT), run free primary healthcare clinics in the evenings. SHAWCO manages seven weekly student-run primary healthcare clinics in several under-served Cape Town communities. Crèches (day-care facilities) and primary schools are also visited on a weekly basis and provide preventive care to children in under-privileged communities. SHAWCO maintains a close relationship with UCT's Faculty of Health Sciences, and runs clinics in partnership with, among others, the School of Child and Adolescent Health.

SHAWCO clinics were started by concerned medical students and faculty members in the early 1940s in response to large numbers of poor migrant labourers seeking work in Cape Town. The latter were forced to live in rapidly growing shanty towns, without access to basic amenities or healthcare facilities.^[2] Initially, SHAWCO provided both healthcare and social welfare services. During the Apartheid years,

SHAWCO continued with its activities in the townships, despite opposition from the state. The clinics were often the only form of healthcare available in these areas.

Currently, over 500 medical and allied health sciences students continue to deliver free primary healthcare to over 4 000 people in under-resourced and under-served communities throughout Cape Town annually. During clinic hours, patients are examined and treated by medical students from UCT, who are supervised by volunteer doctors from public hospitals and private practices. Students in their clinical years (years 4 - 6) are responsible for clerking and managing patients, while simultaneously training pre-clinical students (years 1 - 3).

SHAWCO and health sciences education

In an article in a 1963 edition of the *SAMJ*,^[3] Dr Golda Selzer, a co-founder of SHAWCO, writes that this organisation provides students with experience in a range of clinical problems and conditions rarely seen in highly specialised teaching hospitals, but that are the mainstay of general practice. The community-based approach of SHAWCO tackles aspects of general medical practice that cannot be dealt with at tertiary hospitals.^[2]

Katz^[4] alludes to the multiple educational benefits of SHAWCO, including knowledge gained regarding the manifestations and treatment of common ailments, the application of knowledge gained during formal education in a practical training ground, and the ability to distinguish minor complaints from serious ones. In addition, Katz writes that the clinical environment of SHAWCO 'enables the student to handle a patient with ease, enhancing the doctor-patient relationship'. The article concludes that the knowledge gained and the increased appreciation of patients' medical and social problems better prepare these students for clinical medicine.

Role of student-run clinics in medical education

A number of studies demonstrate that student-run clinics, in addition to benefiting local under-served communities, also play a significant role in medical education, filling the primary healthcare gap not addressed by tertiary hospitals.^[5-8] The autonomous nature of student-run clinics promotes student-directed learning, more humanistic learning and patient care.^[8] Students learn and practise many skills while working in the clinics, including taking a history, examining patients, formulating assessments and managing, while also gaining an understanding of important biopsychosocial issues.^[6,9-11] The clinics also provide students with administrative and health management training – an aspect omitted in their health sciences education.^[8,12-14] Many student-run clinics offer multidisciplinary team-based care, which provides an ideal context for fostering a team relationship. Some studies conclude that the early clinical experience helps students to develop confidence and a positive attitude towards their medical studies and future careers.^[6] Students who have had early clinical contact are also more likely to pursue careers in primary care, become more socially responsive and show a greater interest in rural health.^[11]

There is good evidence that the quality of care delivered at student-run clinics is as good as or better than healthcare managed and delivered by qualified professionals,^[8] and that patients are satisfied with the service.^[15]

The aim of this study was to determine the role of student-run free clinics in medical education at UCT.

Research questions

- What are the educational benefits of student-run free clinics?
- What do medical students gain from working in the clinics that they would not gain from their formal medical training?
- Why do medical students attend the clinics?
- What form of educational platform do the clinics provide?

Methods

Study design

This was a cross-sectional mixed-methods (primarily quantitative) study done by means of a questionnaire and analysis of the SHAWCO patient and student-volunteer databases.

Ethical considerations

Ethics approval for use of the SHAWCO databases and questionnaires was obtained from the UCT Research Ethics Committee (REC-REF:187/2010). All data were anonymous and informed consent was obtained from all participants.

Instruments used

A standardised quantitative questionnaire with dichotomised Likert scales was used, with the option of providing additional comments for each question. Some of the questions are the same as or similar to those used by Simpson and Long,^[5] but have been adapted to the South African context. The full questions are provided in the results section of this article. During a pilot study, the questionnaire was administered to 10 regular SHAWCO volunteers. The study appears to have good construct validity: the students all agreed that the questions were clear. Reliability was estimated using the 'test/re-test' method, i.e. 3 participants completed the same questionnaire on two different occasions. There was a high positive correlation between original and repeat survey results ($r=0.9$) and the study was shown to be repeatable and generalisable. The concepts were well defined and explained before being measured. Questionnaires were proofread and reworded to make them easy to understand, with no chance of misunderstanding.

Study population

The study population consisted of health science students at UCT ($N=668$) who had volunteered to work in SHAWCO clinics (Fig.1). This study population represents approximately 39.1% of the total health sciences campus student population.

Sample

A non-randomised convenience sample of students in all years of study (Fig. 2) was obtained, with 110 questionnaires captured from available volunteers at SHAWCO clinics during a 1-month period in 2010. Using a 95% confidence interval (CI), the sample population needed to be $n>61$ to yield results of statistical significance. Answer saturation was attained with qualitative questions.

Data analysis

Data were cleaned and analysed using Microsoft Excel 2003 software. Results of the dichotomised Likert scales were converted to population proportions. The adjusted Wald method was used to calculate CIs for population proportions. Thematic analysis was used for qualitative data obtained from participants' comments.

Results

SHAWCO patient population

The SHAWCO database captured 4 267 patients in 2010, over two-thirds of whom were female.

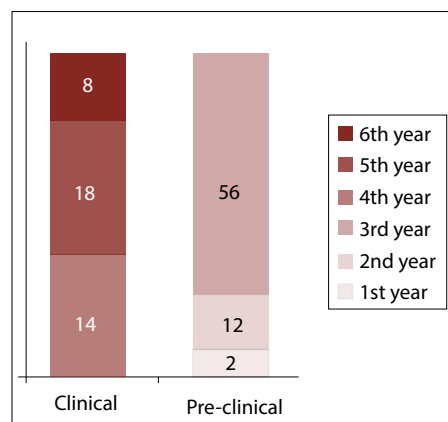


Fig. 2. Student participants by year of study.

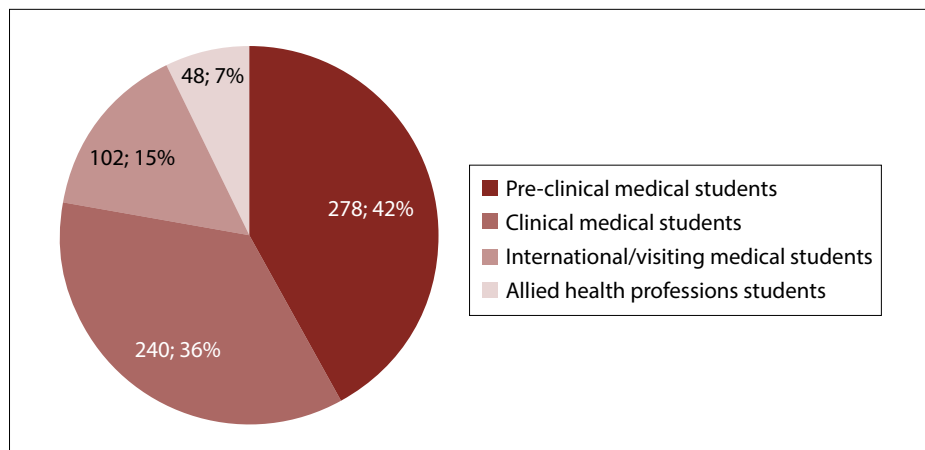


Fig. 1. Total student volunteers.

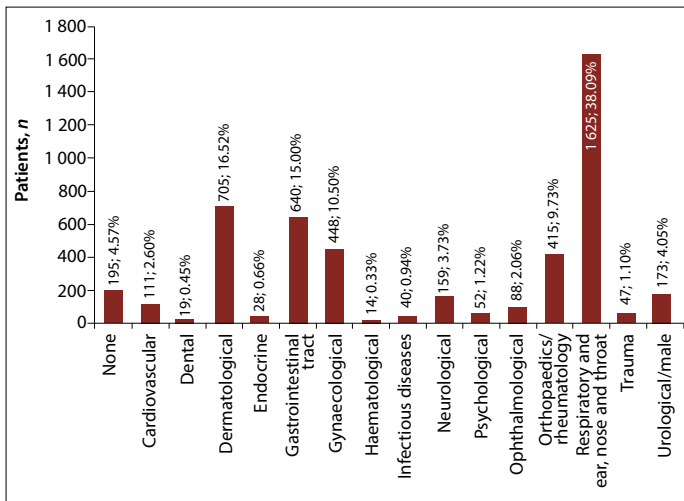


Fig. 3. Patient diagnosis statistics.

The patients ranged from 2 weeks to 91 years of age, with the largest grouping <18 years of age (39.37%).

The majority of patients presented with infectious diseases, often associated with poor living conditions, lack of basic services and the HIV/TB co-epidemic. The six leading diagnoses (Fig. 3) were upper respiratory tract infections (20.98% of all patients), backache (5.60%), lower respiratory tract infections (5.48%), suspected or confirmed worm infestations (5.44%), sexually transmitted diseases/infections (5.39%) and acute diarrhoea (4.76%).

Educational benefits of attending clinics

Many students learn a variety of new skills for the first time in SHAWCO clinics (Table 1), including basic side-room investigations and clerical skills. Many skills that are taught as part of the medical curriculum are later practised in SHAWCO clinics (Fig. 4), as one respondent wrote:

‘SHAWCO clinics allow me to put into practice the copious amounts of theory being learned and make it more relevant to what I am doing.’

Several students also mentioned using clinics as an opportunity to practise their language skills ($n=11$), specifically Afrikaans and isiXhosa. Tables 2 and 3 summarise what students perceive to be the benefits of attending SHAWCO clinics.

Teaching

Whereas pre-clinical students are predominantly taught by students in their clinical years (83.82%), the latter receive more teaching from volunteer doctors (77.50%) and less from their peers (61.54%). One volunteer responded as follows:

‘The clinics allow us as students to assist those in the years below us develop the skills that we were so privileged to learn during our SHAWCO experiences. The whole self teach thing works, if it is voluntary and practical ... [and] not in a tutorial room!’

Why do students attend SHAWCO clinics?

Most students attend clinics ‘to serve the poor’ (93.58%) or because of enjoyment (93.64%), as one participant wrote:

‘Being a first year, SHAWCO is what brought excitement to my medical school life because we don’t do anything practical ... I like them maybe because they’re not compulsory: I go because I want to.’



Fig. 4. Patients queue outside a SHAWCO clinic in Cape Town, South Africa.

Table 1. What skills did you learn for the first time in SHAWCO clinics?

Skills	Student volunteers (N=110), % (CI (%))
Completing a referral letter or medical certificate	63.64 (54.32 - 72.04)
Taking a patient history	58.18 (48.84 - 66.98)
Presenting patients to the doctor	57.27 (47.93 - 66.12)
Performing physical examinations	56.36 (47.03 - 65.26)
Performing a pregnancy test and counselling	56.36 (47.03 - 65.26)
Filling in a legal prescription	53.64 (44.35 - 62.68)
Managing/treating patients	52.73 (43.46 - 61.81)
Performing health promotion/education	42.73 (33.88 - 52.07)
Testing blood glucose with a visidex	38.18 (29.64 - 47.52)
Using an otoscope or ophthalmoscope	34.55 (26.3 - 43.83)
Using a stethoscope, reflex hammer or taking blood pressure	31.82 (23.83 - 41.03)
Testing haemoglobin with a haemoglobinometer	24.55 (17.41 - 33.4)

SHAWCO = Students’ Health and Welfare Centres Organisation of the University of Cape Town; CI = confidence interval.

The majority of students attend clinics to spend time with patients and get hands-on exposure (98.18%):

‘We were actually responsible for the appropriate treatment and management of patients for the first time.’

‘I want to do primary care when I graduate. We don’t get enough clinical exposure to primary level problems in our curriculum.’

Discussion

Benefits of student-run free clinics

SHAWCO clinics have several benefits over government-run clinics. Student volunteers identified these benefits, which include more time to address patients’ needs (allowing a higher quality of care), shorter waiting times (resulting in greater patient satisfaction), and free care and treatment. A respondent wrote:

Table 2. Do you feel that attending SHAWCO clinics ...

	Student volunteers (N=110), % (CI (%))
Allows you to better understand the socio-economic background of patients in our society?	89.18 (87.39 - 90.74)
Makes you more confident in interviewing or examining patients?	88.73 (86.92 - 90.32)
Shows you the practical relevance of what you are studying and makes it easier to study?	87.06 (85.14 - 88.76)
Helps you to learn things that could not be gathered from books?	84.22 (82.16 - 86.08)
Humanises the medical treatment of disadvantaged people?	82.87 (80.75 - 84.80)
Reminds you why you are studying medicine?	77.99 (75.68 - 80.13)
Improves your health management and logistical skills?	76.71 (74.36 - 78.90)
Has improved your knowledge of South Africa's medical system?	69.95 (67.43 - 72.35)
Promotes the multidisciplinary team relationship?	47.56 (44.89 - 50.24)

Table 3. Why do I volunteer for SHAWCO clinics?

	Student volunteers (N=110), % (CI (%))
To spend time with patients/get hands-on exposure	98.18 (93.21 - 99.91)
I enjoy myself at clinics	93.64 (87.23 - 97.1)
To serve the poor	93.58 (87.12 - 97.07)
To learn clinical skills	85.45 (7.57 - 90.95)
Because I don't get enough clinical (hands-on) exposure as part of my academic course/these clinics fill this gap in the curriculum	66.06 (56.74 - 74.28)
To spend time with friends	56.36 (47.03 - 65.26)
Enhance my resume/curriculum vitae	36.70 (28.23 - 46.07)
To receive rewards/gifts	5.45 (2.28 - 11.63)

'We deliver care within the community – we get to know the members of the community within their cultural context – we use what they have taught us to come up with culturally/contextually-appropriate treatment plans. We are given the opportunity of time to address ALL the patients' needs.'

Situated learning at SHAWCO

The leading diagnoses at student-run free clinics in First World countries appear to be diseases of lifestyle and urban environment, i.e. hypertension, diabetes, hyperlipidaemia, depression and asthma.^[12,13] This is in contrast to the diagnoses at SHAWCO clinics in the South African context, where infectious diseases (respiratory and gastrointestinal) related to living conditions and the HIV/AIDS/TB pandemic predominate. Despite the majority of patients having primary care problems, medical training is conducted in secondary and tertiary hospitals; consequently, such problems

are often neglected. The clinics expose students to appropriate primary healthcare conditions that they will frequently encounter during their internship and community service years.

The SHAWCO experience provides hands-on clinical experience that enhances the learning of students, and additional health management/administrative skills lacking in our healthcare system. Although elements of SHAWCO have been incorporated into the UCT medical school curriculum, it does not qualify as a service-learning experience, i.e. students do not reflect upon their experiences in the formal clinics and there are no learning outcomes or core competencies. Perhaps SHAWCO and other student-run clinics are better suited in their current role of providing a platform for learning situated in the community as an adjunct to formal university medical education. They provide a controlled environment in which to practise skills learned during medical training. This is the concept of situated learning (learning taking place in the same context in which it is applied), first proposed by Lave and Wenger.^[16]

The clinics also offer an opportunity to integrate language training into the curriculum (specifically isiXhosa and Afrikaans), as one respondent wrote:

'I attend the SHAWCO Masiphumelele Clinic, and a significant proportion of patients speak isiXhosa as a first language, MAYBE some English. Thus, it has impressed upon me the importance of being able to effectively and understandably converse with these patients in isiXhosa. SHAWCO always allows me to practise my isiXhosa, and my skill in the language has definitely improved as a result of attendance of the clinics.'

Why do students attend student-run free clinics?

'You initially learn clinical skills in the tertiary level teaching hospital where the patients are complicated and are tired of seeing so many students. I used to hate going up to patients as a second or third year where your practicing does nothing to help them and they are irritated because you are the millionth student come to see them. At SHAWCO clinics, you don't feel bad about practicing your clinical skills on them because you are actually being useful and your examination contributes towards the diagnosis and management of the patient instead of it only benefiting you.'

By attending SHAWCO clinics, students gain clinical exposure and confidence, practise clinical skills, and gain skills that cannot be learnt in a lecture room setting, including administrative and logistics skills. The results indicate that a more hands-on training is more appreciated by students.

Community of practice

The concept of a community of practice, a group that shares a similar occupation and interests, was first postulated by Lave and Wenger^[16] and can be seen in the SHAWCO community. The clinics offer a unique opportunity for senior students to tutor junior students by passing on their knowledge. This peer-to-peer teaching is often easier for students. They may attend clinics, as they feel a sense of belonging or a connection to similar medical professionals who all have similar ideals and interests. This group provides motivation and a sense of importance to the students.

Some comments by participants illustrate this idea:

'I really enjoy the interaction with the patients, hearing their stories. I really appreciate that they let us all learn from them, but it seems that they appreciate us too ... It makes me so excited to be doing this course. Working at SHAWCO reminds me of the things that make all the theory that we have to slog through worth while!'

Making clinical practice a fun experience:

It is also clearly evident from the respondents' comments that the clinics motivate and encourage them. In short, they are fun. They give students a sense of purpose and achievement, and a desire to persevere with the degree programme.

Humanistic care and biopsychosocial context

The SHAWCO experience makes volunteers feel that they have made a difference and positively reinforces their altruistic reasons for becoming doctors. This is very important as many feel that the medical school experience has become dehumanising for both patient and student. The clinics teach the students an holistic approach to managing patients.

As one volunteer wrote:

'The most important thing I learned from SHAWCO was the influence of social problems on people's health and well-being. (Something that is largely ignored in clinical medicine curriculum).' 'It has also opened [my eyes] into other peoples' worlds and background, which has taught me a lot about how different cultures perceive certain diseases.'

Pitfalls of student-run free clinics

Free clinics are perpetually under-resourced, which creates challenges, i.e. insufficient supervision and under-treatment of patients. As a result of learning from peers and inexperienced physicians, students may also acquire poor clinical practices ('bad habits'). Some weaknesses identified by study participants include a lack of certain essential services at the clinics, insufficient access to psychosocial services, and poor continuity of care (patients are often seen by different students and doctors on a return visit to the SHAWCO clinic, resulting in poorer treatment outcomes). The clinics teach these important realities of healthcare in the South African context to future patient advocates and healthcare leaders.

Conclusion

SHAWCO student-run clinics play an integral role in primary healthcare education at UCT's Faculty of Health Sciences by increasing clinical exposure, confidence, skills and knowledge of medical students. These clinics achieve what the medical curriculum struggles to do: humanise medical treatment, allowing one to better understand the socio-economic background of patients. This author recommends that student-run free clinics at medical schools throughout South Africa would serve as ideal

platforms for situated learning, while simultaneously fulfilling the social responsibility obligations of the medical institutions.

Future research opportunities

There are several research opportunities available to explore, e.g. how do student-run free clinics influence future career choice: are volunteers more likely to work in rural settings once qualified, or stay in Africa? Another avenue of research to assess the educational role of student-run free clinics would be to compare the quality of patient care from doctors who attended free clinics with that of colleagues who did not. A future study could also ascertain where students acquired knowledge, confidence and clinical skills, comparing SHAWCO volunteers with other medical students.

There are currently no data comparing the quality of care received at student-run to government clinics in South Africa and limited research on the quality of care received at student-run clinics in general.

Acknowledgement. I would like to thank Dr George Draper for his supervision during this study.

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